Application Serial No.: 10/035,754
Filing Date: 12/29/2001

Reply to Office action of: 03/28/2005
Attorney Docket No.: ARC920010097US1

REMARKS

This Amendment is in response to the Office Action of March 28, 2005. Applicants respectfully submit that all the claims presently on file are in condition for allowance or appeal.

REJECTION UNDER 325 USC 103

Claims 1-26 were rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,865,617 issued to Zeidner et at. (hereinafter referred to as Zeidner) in view of USPAPN 2003/0056000 submitted by Mullendore et al. (hereinafter referred to as Mullendore). Applicants respectfully traverse this rejection and submit that the claims on file are not obvious in view of cited references. In support of this position, Applicants submit the following arguments:

A. Legal Standards for Obviousness

The following are court opinions set the general standards in support of Applicant's position of non-obviousness, with emphasis added for added clarity:

- MPEP 706.02(j), "**To establish a prima facie case of obviousness, three basic criteria must be met.** First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim**

limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) ... The initial burden is on the examiner to provide some **suggestion of the desirability** of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the **references must expressly or impliedly suggest the claimed invention** or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985)."

- **In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is** not whether the differences themselves would have been obvious, but **whether the claimed invention as a whole would have been obvious**. The prior art perceived a need for mechanisms to dampen resonance, whereas the inventor eliminated the need for dampening via the one-piece gapless support structure. "Because that insight was contrary to the understandings and expectations of the art, the structure effectuating it would not have been obvious to those skilled in the art." 713 F.2d at 785, 218 USPQ at 700 (citations omitted).

- MPEP §2143.03, "All Claim Limitations Must Be Taught or Suggested: To establish prima facie obviousness of a claimed invention, **all the claim limitations must be taught or suggested by the prior art**. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "**All words in a claim must be considered** in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)."

- "With respect to core factual findings in a determination of patentability, however, the **Board cannot simply reach conclusions based on its own understanding or experience** -- or on its assessment of what would be basic knowledge or common sense. **Rather, the Board**

must point to some concrete evidence in the record in support of these findings." See In re Zurko, 258 F.3d 1379 (Fed. Cir. 2001).

- "**Obviousness cannot be established** by combining the teachings of the prior art to produce the claimed invention, **absent some teaching or suggestion** supporting the combination." *In re Fine, 837 F.2d at 1075, 5 USPQ2d at 1598* (citing *ACS Hosp. Sys. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984)*). **What a reference teaches** and whether it teaches toward or **away from the claimed invention** are questions of fact. See *Raytheon Co. v. Roper Corp., 724 F.2d 951, 960-61, 220 USPQ 592, 599-600 (Fed. Cir. 1983)*, cert. denied, *469 U.S. 835, 83 L. Ed. 2d 69, 105 S. Ct. 127 (1984)*. "

- "When a rejection depends on a combination of prior art references, there must be **some teaching, suggestion, or motivation** to combine the references. See *In re Geiger*, 815 F.2d 686, 688, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987)." Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention **where there is some teaching, suggestion, or motivation** to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See MPEP 2143.01; In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); and In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

- "We have noted that **evidence of a suggestion, teaching, or motivation to combine** may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved, see Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc., 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed. Cir. 1996), Para-Ordinance Mfg. v. SGS Imports Intern., Inc., 73 F.3d 1085, 1088, 37 USPQ2d 1237, 1240 (Fed. Cir. 1995), although "the suggestion more often comes from the teachings of the pertinent references," Rouffet, 149 F.3d at 1355, 47 USPQ2d at 1456. The range of sources available, however, does not diminish the requirement for actual evidence. That is, **the showing must be clear and particular**. See, e.g., C.R. Bard, 157 F.3d at 1352, 48 USPQ2d at 1232. **Broad conclusory statements regarding the teaching of multiple references, standing alone, are not "evidence."** E.g., McElmurry v. Arkansas Power & Light

Co., 995 F.2d 1576, 1578, 27 USPQ2d 1129, 1131 (Fed. Cir. 1993) ("Mere denials and conclusory statements, however, are not sufficient to establish a genuine issue of material fact."); In re Sichert, 566 F.2d 1154, 1164, 196 USPQ 209, 217 (CCPA 1977)." See In re Dembiczak, 175 F. 3d 994 (Fed. Cir. 1999).

- MPEP §2143.01, "The Prior Art Must Suggest The Desirability Of The Claimed Invention: There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art." In re Rouffet, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) (**The combination of the references taught every element of the claimed invention, however without a motivation to combine, a rejection based on a prima facie case of obvious was held improper**.). The level of skill in the art cannot be relied upon to provide the suggestion to combine references. Al-Site Corp. v. VSI Int'l Inc., 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999).

- "To prevent the use of hindsight based on the invention to defeat patentability of the invention, **this court requires the examiner to show a motivation to combine the references** that create the case of obviousness. In other words, **the examiner must show reasons** that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references **for combination in the manner claimed**." See In re Rouffet, 149, F.3d 1350 (Fed. Cir. 1998).

- The mere fact that references can be combined or modified does not render the resultant combination obvious **unless the prior art also suggests the desirability of the combination**. In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, **there must be a suggestion or motivation in the reference** to do so." 916 F.2d at 682, 16 USPQ2d at 1432.). See also In re Fritch, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992) (flexible landscape edging device which is conformable to a ground surface of varying slope not suggested by combination of prior art references).

- If the **proposed modification would render the prior art invention being modified unsatisfactory** for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

B. Summary of the Present Invention

Prior to discussing the merit of the obviousness rejection under 35 U.S.C. 103, it might be desirable to review a summary of the present invention and some of the features provided thereby.

In general, when a PC communicates with the server, it exchanges messages to ensure the integrity of the communication. It is when several PCs attempt to store data at the server simultaneously, that bottlenecks arise, and the throughput and performance slow down to a halt. A need therefore arises for combining these messages, and for reducing the number of transmission, thereby alleviating some of the network load.

The present invention relates to a system and method for improving the performance when backing up media and data over networks using storage and network transport protocols. The performance improvement is achieved by reducing the exchange of control messages between clients and servers. Specifically, **SCSI protocol level and TCP/IP protocol level ACKs are combined to reduce CPU utilization at both the source and the target systems**, which improves the overall system throughput and performance, and also reduces the bottleneck at the network level.

C. Independent Claim 1

The office action rejects representative, independent claim 1, based on the following ground:

> "Regarding claim 1, Zeidner teaches a method of improving backup performance of block storage over a network with asymmetric traffic, comprising:
> a client concurrently sending a write command and associated data to a server (col. 2, lines 16-48; figure 4: 401; col. 8, lines 41-43));
> the server executing the write command (col. 9, lines 24-30; col. 10, lines 8-50);
> the server combining a protocol acknowledgment message with a SCSI acknowledgment message, into an acknowledgment message, and transmitting the combined acknowledgment message to the client (abstract; col. 1, lines 46-57; col. 3, lines 3-21); and
> upon receipt of the combined acknowledgment message, the client recognizing a successful execution of the write command by the server (col. 10, lines 8-50).
> However, **Zeidner does not explicitly teach the server suppressing a SCSI RTT message and the client de-allocating a buffer that contains the associated data upon receipt of the combined acknowledgement message**.
> Mullendore teaches delaying a SCSI RTT message [0044-0056; 0058] and de-allocating a buffer that contains the associated data upon receipt of acknowledgement message [0060].
> At the time the invention was made, one of ordinary skill in the art would have been motivated to delay a SCSI RTT message in order to reduce traffic, thus reducing latency, and de-allocating a buffer in order to ensure that data is received, thus maximizing the backup performance efficiency." Emphasis added.

Applicants respectfully traverse this rejection and submit the following arguments:

Zeidner Patent

Zeidner generally describes a mechanism to leverage the TCP/IP multi-casting facility to implement backup across multiple targets. In essence, Zeidner addresses a different problem than the present invention, as it focuses on leveraging the IP multi-cast network.

Applicants agree with the Examiner that "Zeidner does not explicitly teach the server suppressing a SCSI RTT message and the client de-allocating a buffer that contains the associated data upon receipt of the combined acknowledgement message."

Mullendore Reference

The Examiner resorts to Mullendore arguing that Mullendore teaches delaying a SCSI RTT message [0044-0056; 0058] and de-allocating a buffer that contains the associated data upon receipt of acknowledgement message [0060].

In response, Applicants respectfully submit that the text cited by the Examiner, Mullendore [0044-0056] forms part of the Background of the Invention and presents the "delay" as a problem that is addressed by the Mullendore system. The following excerpts reflect this point:

> "[0044] Transfer Ready (XFER_RDY) Delay and Write Performance ... The reduced write performance during combined read and write operations may be the result of a large buffer within the network switch that causes the delivery of transfer ready (XFER_RDY) frames to

be delayed when both write and read operations are being performed. ...

[0054] Preferably, when an initiator 200 issues a write command, ... if the FCP_XFER_RDY IU is delayed, the initiator 200 will not maintain a constant flow of output data when it is waiting for an XFER_RDY IU to transmit data.

[0055] ... Thus, the XFER_RDY IU may be significantly delayed due to queuing of data frames by network switches. Thus, write performance can be degraded significantly when performing a combination of read and write commands. In larger networks, write performance may be degraded when XFER_RDY IUs are delayed due to other traffic, therefore the write performance degradation may not be limited to instances where an initiator 200 is performing both read and write operations.

[0056] FIG. 7 illustrates how XFER_RDY IUs can be delayed due to network switch queuing. The amount of switch queuing 300 may affect the latency of XFER_RDY IUs being returned to an initiator 200. Network switches with small amounts of buffer memory (i.e. small queues 300) may experience fewer problems than network switches with larger amounts of buffer memory (i.e. larger queues 300) because the XFER_RDY IUs may be delayed less within a switch with a small queue 300. ..."

In other terms, and contrary to the present invention, **Mullendore does not intentionally introduce a delay for RTT messages** in order to reduce the number of RTT messages. Rather, Mullendore compensates for delays that are unintentionally introduced by giving the delayed RTT messages a higher priority.

More specifically, **Mullendore teaches away from the present invention** in that while the present invention teaching introducing intentional delays

to the RTT messages, **Mullendore describes a way to compensate for unintentional delays but does not introduce additional delays.**

Consequently, Zeidner and Mullendore cannot be combined, as described in the office action, in that the Mullendore reference teaches away from the present invention.

In addition, even if Zeidner and Mullendore were to be hypothetically combined, the hypothetical combination does not yield the same or similar design as the present invention, in that such a combination will still lack an important element of the invention, as claimed, namely:

> "the server executing the write command, and delaying transmission of a SCSI Ready to Transfer (RTT) message, if any is scheduled to be issued by the server, to within a predetermined timeout constraint, in order to reduce the number of RTT messages from the server to the client".

Furthermore, Zeidner's teaching is significantly different than the present invention, as recited in claim 1, in that Zeidner does not describe a specific SCSI RTT aggregation mechanism. As a result, Zeidner's server cannot combine a protocol acknowledgment message with the intentionallyh delayed SCSI RTT message, into an acknowledgment message, for transmission of the combined acknowledgment message to the client.

In essence, the main reference, namely Zeidner, does not capture the essence of the present invention, and thus **Zeidner whether considered independently or in combination with Mullendore, fails to consider or teach the claimed invention as a whole**.

Claim 1 is thus not obvious in view of Zeidner or Mullendore, and the allowance of this claim and the claims dependent thereon is earnestly solicited.

New independent claim 27 is allowable for containing a similar subject matter to that of claim 1. Therefore, claim 27 and the claims dependent thereon are also allowable.

CONCLUSION

All the claims presently on file in the present application are in condition for immediate allowance, and such action is respectfully requested. If it is felt for any reason that direct communication would serve to advance prosecution of this case to finality, the Examiner is invited to call the undersigned at the below-listed telephone number.

Respectfully submitted,

Date: May 17, 2005

Samuel A. Kassatly Law Office
20690 View Oaks Way
San Jose, CA 95120
Tel: (408) 323-5111
Fax: (408) 521-0111

Samuel A. Kassatly
Attorney for Applicants
Reg. No. 32,247